

TO THE CANADIAN FARMERS.

NOTES

ON

THE BEET-ROOT SUGAR CULTURE

BY

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*To the Canadian Farmers who have signed beet-root
sugar contracts with Mr. J. A. Lavallée or
“ L'UNION SUCRIÈRE FRANCO-CANADIENNE.”*

GENTLEMEN,

To fulfill the promise which I have made to some of you, I have condensed, as clearly as possible, the best method of cultivating the beet-root sugar, being convinced of its utility, and remaining however always at your disposal for all additional details you may require.

You will please, while looking it over, excuse my inexperience of the nature of your soil and of your climate.

Accept, Gentlemen, the expression of my best feelings.

H. LEGRU, JR.

PARIS, 1st March 1881.

Conditions of culture contained in the beet-root sugar contracts.

Use only seed delivered by manufacturers.

Sow only in lands of good quality, excluding marshy or newly cleared land and prairies.

The land for beet-root should not be manured for the crop. This must have been done for the preceeding crop.

Do not use manure that may be hurtful to the quality of the beet. No pastures or broken lands.—Phosphates and Superphosphates of Lime so common in your country are strongly recommended.

Rows should be eighteen inches apart and the beets in line six inches apart.

Do not strip off the leaves of the beet when pulling it up.

Do not bruise the beet when pulling it up and deliver it clear and free of leaves.

At first, just enough beets should be pulled to supply the factory. The balance of crop should be fully ripened before being pulled.

CULTURE OF BEET-ROOT.

PLOUGHING UP THE STUBBLE.

I presume that the preceeding crop shall almost always have been one of grain, wheat for instance, for which the land shall have been manured.

As soon as the harvest will have been ended, work twice the soil with an extirpator both length and cross-ways so as to have it well prepared and the bad weeds entirely extracted. After this operation and according to the weather you should harrow the land and roll it in order to raise the parasite plants, whose seeds have remained in the soil and which winter ploughing causes to disappear.

PLOUGHING.

After having dug up the stubble, proceed to the ploughing of your lands. It is important that the first ploughing should be made as deep as possible, without however, bringing too much new land to the surface.

In France, this work is made often at 14 and 15 inches and sometimes as much as 18 inches in depth.

It is necessary that this ploughing should be done before winter. We remark that after the thaw, lands ploughed in these conditions become very light and

that in a same piece of land one which is ploughed before winter gives a more abundant harvest than one which is ploughed after the frosts.

As soon as thaw sets in, you must proceed to the final preparation of the soil by passing the tricycle in both directions, several times if necessary, and above all being careful, in general, to avoid working land when wet, and as a rule not to trample over it when in this state, either by dressing or carting. Therefore, the soil should be ploughed and dressed only when sufficiently dried up. Rolling is then useful.

In fact, when the soil is dressed in wet weather, it becomes too compact, and as soon as dry weather sets in, it hardens, splits and does not heat up under the influence of the sun. The beet-root not being able to strike root in such a land becomes woody and rises out of the ground.

Light soils are ploughed after heavy lands : and the dryer they are when ploughed the fresher they will be during summer.

ROLLING.

A good rolling, made when weather permits, preceeds the sowing of beet root, which must be also followed by a second rolling. By the first of these operations the land is pressed, becomes less permeable to air and does not dry so easily ; By the second rolling which is the most important and which must sometimes be repeated once or twice, the land is pressed around the seed which is thus in a more favorable

condition for germination than if it was not in immediate contact with the soil.

It is very important that these rollings should be made only when the soil is sufficiently dry, otherwise the result will be to harden the soil, and the seed is burried in a compact mass impevious to the air and to the heat of the sun ; as a consequence the seed will sprout with difficulty, and if it developes itself it winds round unable to break through the crest which covers it and ultimately it is destroyed.

SOWING.

You must commence sowing your beet-roots as soon as you have no reason to fear bad weather and as soon as the soil is sufficiently dry. The work must be done *as soon as possible*, so as to allow the beet to remain in the ground as long as possible, a point which is very important in regard to the yielding of the crop.

The seed must be sown in such a way that it will only be covered by a thin layer of land about $\frac{1}{2}$ an inch, according as the land is wet or dry. You must use from thirteen to fifteen pounds of beet-root seed to the acre so as to have a quicker and surer crop. In this way, there still remain beet-root plants to make up the deficiency in case of destruction by insects. By using a large enough quantity of beet-root seed, you advance the rising of the seed of several days and consequently the first dressing which influences considerably the weight of the crop of beets to the acre.

FIRST DRESSING.

As soon as the beet roots have well risen, and that you begin to see the lines you should make a first dressing either by hand or by a horse-hoe the result of this operation is that it mellows the land and allows it to be heated by the first rays of the sun.

THE PLACING OF THE BEET ROOT.

After the first dressing, proceed to the placing of the beet-root. To do this placing you divide the lines which are 18 inches apart into bunches separated from each other by six inches by means of a raze, taking good care to operate across the lines. In Europe, this work and the dressings are done mostly by women and children.

SINGLEING OR THINNING.

Immediately after the placing of the beet-root you proceed thinning them, an operation which consists in leaving only the best root in each bunch. To do this, with your left hand you hold the plant you desire to keep so as not to shake or unroot it, while with your right hand you pluck away all the other roots which must be taken away.

This thinning of the beet-root must commence when the plants have two leaves. At this moment

beet-roots are still *weak* but this operation should be done as soon as possible, as the remaining stocks are the only ones which derive any advantage from the manure, they soon regain the strength which is necessary to protect them from dry weather and late frosts, and by this means you obtain the greatest possible weight of beet-roots.

SECOND AND THIRD DRESSING.

Immediately after the thinning of the plants and as soon as the weather will permit it, you must give the land a second dressing which is done by means of the horse-hoe between the lines, and by means of the rake between the plants.

The third dressing is given according to the growth of bad weeds ; it must be done with care so as to not break the leaves of the beet-root, which would be prejudicial to the growth of the plant.

Sometimes when the season is very wet a fourth dressing is necessary.

PULLING.

The pulling of the beet-root is subdivided into two parts.

The first part, in small quantities, as soon as the beet-root is fit for work and in sufficient quantities for the feeding of the factory as these beet-roots would not keep.

The second part, as soon as the beet is ripe which is easily seen when the leaves become yellow and drop. Great care should be taken not to pull the beet-roots in large quantities before they have fully matured, as they would be very apt to mouldy in pits as this would be completely lost. I beg to lay much stress on this point as one of the most important.

You may, instead of the spade, which sometimes hurts the beet, make use of a kind of plough without either knife or mould-board or any other implement, provided the beet is not hurt, as this wound would be sure to cause it to rot.

CLEARING AND UNCOVERING.

After the ploughing, beet-roots should be cleared and uncovered. For that purpose you use a large knife with broad blades and heavy enough, whose sharp edge will cut the neck by a single stroke and whose back will be used to scrape the beet-root. You put the beet-roots into a heap; all this work can be done either by women or children.

It is important that those heaps, as soon as they are made, should be covered with leaves till they are taken away so as to preserve the beets from the frosts, from the action of the air and sun, which would result in their losing weight, and would be injurious to their preservation.

We shall only speak of stripping off the leaves of beet-root to mention it, as this mode of operation in every respect is injurious to the plant, both as re-

gard to its weight and specially to its quality. We therefore must most absolutely prohibit, under any pretext whatever, to strip off the leaves of the beets at any period of its growth, or even when it has arrived at full maturity.

SEPARATION OF BEET-ROOT.

There is an essential and capital point, on which, to conclude, I would draw the attention to the cultivation of beet-root, It is the spacing of beet-roots.

In fact, the closer beet-roots are to each other the less tendency they have of forming roots, the deeper they are in the ground, the more regular is their form, you are thus sure of a good ripening, and as a natural consequence of a better preservation in heap.

By placing the roots near each other, the beet is heavier, its flesh being of a closer texture, and as a consequence the crop is more abundant though the beet-root has less volume or bulk.

It was wrong to say in Europe, some few years ago, that beet-roots close to each other would give good results, as regards the weight, only in rich and well improved lands.

To this objection, which might come to your mind, I answer that the German farmer puts his beet-roots at six inches distance on the line and that the *furrows* have only but from 12 to 13 inches of separation between them, and this yields about 65,000 plants to the acre. Now, in these conditions of culture it yields generally a minimum of from 12 to 14 tons to the acre according to the years.

We must bear in mind that the quality of the land in Germany is much inferior to that of France and the lands are far from being as rich and as fertile as those of your own country.

I will also remark that in spite of this inferiority of the land, to a wheat crop succeeds the beet-root harvest, and that the soil which is to carry the beet-root should receive no manure whatever.

From this, we can easily conclude that this great crop obtained is certainly due to the great quantity of plants to the acre.

Finally it is proved by science to day that the richer the beet-root is in sugar, the less it has to borrow from the salts of the soil; *thus in impoverishing less his fields*, the farmer finds the double advantage of obtaining a more successful harvest, coupled with a greater saccharine richness of the plant.

As a proof in support of the unquestionable efficacy of close cultivation of the beet-root, I may again repeat that all the experiments resulting from competitions have been conclusive, and that everywhere the greatest weight yielded always corresponded to the closest cultivation of the plants, that is to say the greatest number of plants to the acre.

Paris, 1st March, 1881.

H. LEGRU, JR.

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